

REMARKS

Reconsideration of this application is respectfully requested.

The Abstract has been rewritten to eliminate legal phraseology and to conform to the 150 word limit. Entry of the Abstract is thus respectfully requested.

The specification is amended to include section headings as suggested by the examiner.

With regard to the claims, claims 14-23, which were rejected under 35 USC §112 for indefiniteness, have been amended in a manner which is believed to conform to the requirements of 35 USC §112. Withdrawal of the rejection under 35 USC §112 is thus respectfully requested.

Claims 14-23 were also rejected under 35 USC §102 based on U.S. patent 2,055,300 to Maurer. In addition claims 14-21 were rejected under 35 USC §103 based on U.S. patent 6,290,155 to Thompson combined with Maurer. Claims 26-40 are newly added.

Prior to discussing the above patents it may be helpful to briefly review the novel concepts and structure of the present invention as claimed herein.

Applicants disclose and claim an apparatus for transmitting power from a motor to a functional unit which can be, for example, a knife unit.

Power transmission to the functional unit is accomplished via driving engagement between a clutch device and a coupling device. The functional unit is thus operable when there is driving engagement between the clutch device and the coupling device.

Such driving engagement occurs when rotational speed of a flywheel passes a predetermined threshold value. Movable engagement blocks on the clutch device are arranged to move via centrifugal force into engagement with cam shaped engagement means on the coupling device to establish driving engagement between the clutch device and the coupling device.

The driving engagement between the clutch device and the coupling device is sudden, instantaneous and without slippage.

With regard to the patents relied on by the examiner Maurer shows a clutch for smooth pickup of a load between the driving member and driven member. Maurer's objective is to eliminate undesirable shocks on transmission parts that result from a sudden clutch engagement (page 1, column 2 lines 21-23). Maurer also is concerned with the elimination of engine stalling due to a clutch engagement that is rapid or instantaneous (page 1, column 2 lines 26-29). Maurer thus provides a gradual engagement between a driving structure D and a driven structure E via gradually increasing forceable contact between high friction engagable surfaces 24 and 25 that are respectively fixed to the structures E and D (Fig. 2, page 2, column 2 lines 29-32) The engagable surfaces 24 and 25 are thus allowed to slip on each other in decreasing amounts as the forceable contact therebetween is increased.

The examiner states at page 5 of the Office Action that,

“Maurer discloses an apparatus...for sudden power engagement with a coupling device (34)...”

Applicants respectfully submit that the examiner has misinterpreted Maurer as teaching sudden engagement with a coupling device 34 in the manner disclosed and claimed by applicants.

As previously discussed Maurer provides gradual engagement between friction surfaces 24 and 25 that are fixed or otherwise bonded to the driving structure D and the driven structure E. Thus there is no sudden slip free driving engagement between the driving structure D and the driven structure E.

All of applicants' claims distinguish over Maurer by requiring a slip free power engagement between a clutch mechanism and a coupling device.

For example independent claim 14 requires,

“...the power transmission device comprising...a clutch which has means for slip free power engagement with a coupling device...said clutch mechanism including...movable engagement blocks...on a guide device for radially outward movement via centrifugal force...said coupling device including a rotating part with cam shaped engagement means, power transmission...taking place when...speed of the flywheel passes a predetermined threshold value wherein...movable engagement...blocks...move radially outwards through...centrifugal force...to suddenly engage...cam shaped engagement means on...coupling device...and wherein...means for slip free power engagement include a contact surface...on...engagement blocks for slip free engagement with the cam shaped engagement means at the instant that engagement occurs between the movable engagement...blocks and the cam shaped engagement means.”

It is thus submitted that claim 14 is patentably distinguishable over Maurer for its requirement of centrifugally movable engagement blocks on a clutch mechanism that make slip free contact with the cam shaped engagement means of the coupling device at the instant that engagement occurs therebetween.

Independent claims 26 and 35 which contain requirements similar to those discussed for claim 14 are also submitted to be patentably distinguishable over Maurer for reasons previously discussed in support of patentability of claim 14 over Maurer.

The dependent claims herein that directly or indirectly depend upon claims 14, 26 and 35 are also submitted to be patentably distinguishable over Maurer for reasons supporting allowance of claim 14 as well as the distinctions defined therein.

Thompson shows a wood chipper with noise abatement and vibration abatement features. A drive mechanism for the wood chipper includes an engine driven drive sheave 132 that drives a driven element 124 via a drive belt 130. The driven element 124 thus rotates at a speed based on the linear speed of the drive belt 130. The linear speed of the drive belt 130 depends on the tightness of the drive belt 130 around the drive sheave 132. Tightness of the drive belt 130 around the drive sheave 132 can be adjusted. Thus Thompson shows a mechanism for transferring torque via a belt 130 and movable drive sheave 132 arrangement wherein the belt 130 must be tightened onto the movable drive sheave 132 in order to transfer torque to the driven element 124 (column 3, lines 51-54).

The examiner, at page 7 of the Office Action, states that

“...it would have been obvious to...replace the power transmission device of Thompson with...power transmission device as taught by Maurer...to improve the controlling of the functional unit...”

Applicants respectfully disagree. As previously discussed the Thompson power transmission device includes a belt 130 for transferring power from a drive sheave 132 to a driven element 124.

During operation of the Thompson wood chipper the drive belt 130 may require occasional replacement during maintenance of the Thompson system.

Belt changes in the Thompson system are relatively simple in comparison with replacing the engageable friction surfaces 23 and 24 in the Maurer clutch, or replacing the entire Maurer clutch.

Replacement of the friction surfaces 23 and 24 in the Maurer clutch would require disassembly of the driving structure A from the driven structure E, removal of the old Maurer friction surfaces 23 and 24 and possible grinding down of the base surfaces to ensure that the replacement frictional engagement surfaces 23 and 24 are properly seated and secured. The entire replacement of the Maurer clutch would be another option.

Thus considering the relative ease of replacing the Thompson drive belt 130 versus replacement of the friction surfaces 23 and 24 or replacement of the entire clutch in the Maurer system it is unlikely that persons skilled in the art would modify Thompson in the manner suggested by the examiner, since such modification would create an abundance of problems with no operational improvements.

It is noted that the Thompson patent is dated 2001 and the Maurer patent is dated 1936.

It is thus apparent that Thompson teaches away from using a clutch structure by providing a throttle engagement control 144, 150 in order to engage or disengage the chipper. Engagement or disengagement is accomplished by moving the drive sheave 132 through manipulation of a lever 150. Adjustment of motor speed is done at respective settings by means of transverse portions 154.

Applicants thus submit that there are no benefits or advantages resulting from a combined Thompson and Maurer system over the Thompson system that would motivate persons skilled in the art to modify the existing Thompson system by incorporating the Maurer clutch in such system to replace the belt driven power transmission system of Thompson.

Thus there is no logical incentive for Maurer to be combined with Thompson since there is no benefit in using the Maurer clutch.

Furthermore even if such combination were tenable Maurer does not show or suggest a slip free engagement between a driving structure and a driven structure as required in applicants' claims.

It is thus submitted that there is no obvious basis for combining Maurer and Thompson and the examiner's combination of such patents is inappropriate under the precepts of 35 USC §103(a).

Accordingly it submitted that all claims in this application are patentably distinguishable and allowable over Maurer and over the combination of Thompson and Maurer for reasons previously discussed. It is also submitted that all claims herein are patentably distinguishable and allowable over Maurer and Thompson in combination with any of the other patents cited by the examiner.

In view of the foregoing remarks and amendments it is submitted that this application is in condition for allowance and allowance thereof is respectfully requested.

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RODMAN & RODMAN
10 Stewart Place – Suite 2CE
White Plains, New York 10603

Telephone: (914) 949-7210
Facsimile: (914) 993-0668

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Respectfully submitted,
/Philip Rodman/
Philip Rodman, Reg. No. 25,704
Attorney for Applicants